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EXAMINER

QUASH, ANTHONY G

ART UNIT PAPER NUMBER

2881

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/499,962

Applicant(s)

ANDERSON ET AL.

Examiner

Anthony Quash

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 20-22, are rejected under 35 U.S.C. 102(b) as being anticipated by Becker [137]. As per claim 20, Becker [137] discloses a method of constructing an apparatus comprising a plurality of components of an ion optical system for a mass spectrometer, the method comprising bringing together a base having a front face, a rear face and at least one side face, and a plurality of supports wherein each of the supports has at least one face and wherein each of the components is attached or is attachable to one of the supports, aligning at least a portion of a face of each of the supports with a corresponding portion of at least one face of the base and securing the

portions to one another, wherein the components of the ion optical system for a mass spectrometer are attached to the supports prior to or subsequent to the step and wherein the portions of the faces are configured and dimensioned such that when the portions are secured, the components are optically aligned within acceptable tolerances. See Becker [137] figs. 1A, 1B, 3A, and 4.

As per claim 21, Becker [137] discloses the components comprising an ion source and a detector (19) and optionally one or more of pulser, an ion mirror and an Einzel lens (40). See Becker [137] fig. 3A, col. 4 lines 35-45, col. 7 lines 60-67, and col. 8 lines 60-67.

As per claim 22, Becker [137] discloses the components comprising an ion source, and a detector (19) and optionally one or more of a pulser and an ion mirror wherein the components are aligned in a parallel relationship. See Becker [137] figs. 1A, 1B, 3A, 4, col. 4 lines 29-67, col. 5 lines 55-67, col. 7 lines 60-67, col. 8 lines 58-67 and col. 10 lines 20-35.

Claims 26-28, are rejected under 35 U.S.C. 102(b) as being anticipated by Becker [137]. As per claim 26, Becker [137] discloses all aspects of the claim explicitly stating affixing to a mounting base each component of an ion optics system for a mass spectrometer. Becker [137] does however disclose affixing each component of the ion optic system to support, which is attached to other supports, which are in turn attached to the base. See Becker [137] figs. 1A, 1C, 3A, 3B and col. 4 lines 28-65. Therefore the components of the ion optics system are inherently attached to the mounting base. Becker [137] also discloses each of the ion optics components being affixed to a

support either prior to or after the support is affixed to the mounting base, and each of the supports having at least one support mating face, wherein the mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face, wherein the support mating faces and the base mating faces are configured and dimensioned such that when the support mating faces are brought together in registration with the respective base mating faces, the components are optically aligned within acceptable tolerances, and securing the mounting base to frame of the mass spectroscopy apparatus. See Becker [137] figs. 1A, 1B, 3A, 4, col. 4 lines 29-67, col. 5 lines 55-67, col. 7 lines 60-67, col. 8 lines 58-67 and col. 10 lines 20-35.

As per claim 27, Becker [137] discloses the components comprising an ion source and a detector (19) and optionally one or more of pulser, an ion mirror and an Einzel lens (40). See Becker [137] fig. 3A, col. 4 lines 35-45, col. 7 lines 60-67, and col. 8 lines 60-67.

Claims 10,20,26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kirchner [975]. As per claims 10,20,26, Kirchner [975] teaches a mass spectroscopy apparatus and method comprising components of an ion optics system for a mass spectrometer affixed to a mounting base (485), each of the components being affixed to a support (485), each of the supports having at least one support mating face, wherein the mounting base comprises a plurality of base mating faces, respectively corresponding to a respective support mating face, wherein the support mating faces and the base mating face are configured and dimensioned such that when the support mating faces are brought together in registration with the respective base mating faces

the components are optically aligned within acceptable tolerances. See Kirchner [975] fig. 4A, abstract, col. 11 lines 25-67, col. 12 lines 25-35, col. 18 lines 50-60.

Claim 30 is rejected under 35 U.S.C. 102(e) as being anticipated by Blessing [429]. Blessing [429] discloses a scientific apparatus for use in high vacuum environments, the apparatus comprising at least one electrical connection therein resulting from a base having a groove in at least one face thereof wherein an electrical lead is sequestered in the groove and wherein a shielding plate covers the groove. See Blessing [429] abstract, figs. 2, 2b-4, col. 5 lines 40-50, 63-67, col. 6 lines 1-10, col. 7 lines 1-15, and lines 35-50.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meek [365]. As per claim 1, Meek [365] teaches a base (12) having front and rear faces and at least one side face and, at least two supports (13-16) wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. See Meek [365] fig. 1. However, Meek [365] does not specifically

state that at least one of the supports has attached thereto a component of an ion optics system for a mass spectrometer. Meek [365] does however, teach a screen (20) being used to allow ions to enter trapping cell. Meek [365] also teaches that orbital motion of the ions can be detected by the observation of electric currents (image currents) induced in the walls of the cell which is made up of six plates (11-16). See Meek [365] fig. 1 and col. 5 lines 34-50. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have a at least one of the supports to have attached thereto a component of an ion optics system for a mass spectrometer in order to observe the motion of ions as taught in Meek [365].

As per claim 2, Meek [365] teaches the alignment being at 90 degrees. See Meek [365] fig. 1.

As per claim 3, Meek [365] discloses at least one of the supports has at least two faces and at least a portion of each of the two faces being aligned with two faces of the base. See Meek [365] fig. 1.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker [137]. As per claim 1, Becker [137] teaches a base having a front face, a rear face and at least one side face, and at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. However, Becker [137] does not specifically state that at least one of the supports has attached thereto a component of an ion optics (20) system for a mass spectrometer. See Becker [137] abstract, figs. 1A, 1B, 3A, col. 4 lines 28-65 and col. 5

lines 55-60. Becker [137] does however, teach a lid (which adds support) to the structure and is also attached to the supports, which are adjacent to the base, containing a component of ion optics (20). See Becker [137] figs. 1A-3A. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have move the ion optics component (20) and TOF from the lid to one of the support walls of the main chamber, since it has been held that rearranging parts of an invention involves only routine skill in the art.

As per claim 2, Becker [137] teaches the alignment being at 90 degrees. See Becker [137] abstract, figs. 1A, 1B, and 3A.

As per claim 3, Becker [137] teaches at least one of the supports has at least two faces and at least a portion of each of the two faces is aligned with two faces of the base. See Becker [137] abstract, figs. 1A, 1B, and 3A.

As per claim 4, Becker [137] teaches a plurality of supports with attached components comprising an ion source (18) and a detector (19) and optionally one or more of a pulser, an ion mirror and an Einzel lens (40) and the alignment results in a relationship between the components that are within acceptable tolerances. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 5, Becker [137] teaches a mass spectroscopy apparatus according to claim 1. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

Claims 10,13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker [137]. As per claim 10, Becker [137] teaches all aspects of the claim except for a mass spectroscopy apparatus comprising components of an ion optics system (20) for a mass spectrometer affixed to a mounting base, each of the components being affixed to a support, each of the supports having at least one support mating face, wherein the mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face wherein the support mating faces and the base mating faces are configured and dimensioned such that when the support mating faces are brought together in registration with the respective base mating faces, the components are optically aligned within acceptable tolerances. However, Becker [137] does teach a mass spectroscopy apparatus comprising components of an ion optics system (20) for a mass spectrometer affixed to a lid which is supported by supporting walls which are attached to the mounting base, it also teaches the mounting base having a plurality of faces. See Becker [137] figs. 1A-3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made move the ion optics (20) along with the TOF tube to one of the supporting walls and have the support mating faces be brought together in registration with the respective base mating faces, the components being optically aligned within acceptable tolerances since it has been held that rearranging parts of an invention involves only routine skill in the art.

As per claim 13, Becker [137] teaches a mating face comprises a planar surface adjacent an outside edge and a corresponding mating face adjacent an inside edge and

the corresponding mating faces are brought together in registration by apposing the respective planar surfaces and edges. See Becker [137] figs. 1A, 1B, and 2A.

As per claim 14, Becker [137] teaches a mass spectroscopy apparatus wherein the mounting base is a generally flat member having first and second surfaces and a finite thickness, and wherein the support mating faces comprises a planar surface adjacent an inside edge, and the corresponding base mating face comprises a planar surface that forms an outside edge where it intersects the first mounting block surface, and the mating faces are brought together in registration by apposing the respective planar surfaces and edges. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 15, Becker [137] teaches the outside edge formed by intersection of the base mating surface and the support mating surface defines a straight line. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 16, Becker [137] teaches the base mating surface being orthogonal to the support mating surface. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 17, Becker [137] teaches a mass spectroscopy apparatus comprising a time-of-flight mass spectrometer, the time components comprising at least one of an ion source, a pulser (18), and ion mirror or a detector (19). See Becker [137] figs. 1A, 1B, 3A, 4, col. 4 lines 29-67, col. 5 lines 55-67, col. 7 lines 60-67, col. 8 lines 58-67 and col. 10 lines 20-35.

As per claim 18, Becker [137] teaches the components further comprise an Einzel lens (40). See Becker [137] fig. 3A and col. 5 lines 55-60.

Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirchner [975]. As per claim 11, Kirchner [975] teaches all aspects of the claim except for a support mating face comprising a geometrical shape and a corresponding base mating face comprising a complementary geometrical shape and the corresponding mating face being brought together in registration by apposing the geometrical shape. Kirchner [975] does teach the base mating face comprising a geometrical shape. See Kirchner [975] fig. 4A. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have a support mating face comprise a geometrical shape and a corresponding base mating face comprise a complementary geometrical shape and the corresponding mating faces being brought together in registration by apposing the geometrical shape in order provide a better seal between the base and the support.

As per claim 12, Kirchner [975] teaches all aspects of the claim except for complementary geometrical shapes comprising a protrusion from one of the mating faces and a recess in the other of the mating faces. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the complementary geometrical shapes comprise a protrusion from one of the mating faces and a recess in the other of the mating faces in order provide a better seal between the base and the support.

Claims 1,6,8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young [976] in view of Kirchner [506]. As per claim 1, Young [976] teaches an apparatus comprising a base having a front face, a rear face and at least one side face and supports having attached thereto a component of an ion optics system for a mass spectrometer. See Young [976] fig. 2. However, it does not specifically state that the apparatus be comprised of at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. However, Kirchner [506] does teach an apparatus be comprised of at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. See Kirchner [506] fig. 2. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to cover the apparatus of Young [962] by at least two supports wherein each support has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a port of at least one face of the support in order to provide a covering in order to produce a vacuum area for the ions to pass through.

As per claim 6, Young [962] teaches the supports are fixed to the front face of the base and the front face or rear face of the base having at least one groove therein. See Young [962] fig. 2.

As per claim 8, Young [962] teaches the base further comprising at least one opening there through. See Young fig. 2.

As per claim 9, Young [976] in view of Kirchner [506] teach all aspects of the claim except for at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening in order to ensure proper alignment with the ion optics and ensure a vacuum tight atmosphere.

Claims 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young [976] in view of Kirchner [506] as applied to claim 6 above, and further in view of Blessing [429]. As per claim 7, Young [976] in view of Kirchner [506] teach all aspects of the claim except for an electrical lead being sequestered in the groove and the apparatus further comprising a shielding plate covering the groove. Blessing [429] does teach an electrical lead being sequestered in the groove and the apparatus further comprising a shielding covering the groove. See Blessing [429] abstract, col. 5 lines 40-53, 63-67, col. 6 lines 1-7, and col. 7 lines 1-15 and 35-50. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have electrical lead be sequestered in the groove and the apparatus further comprise a shielding covering the groove in order prevent non-ideal field distortion at the central axis as taught in Blessing [429].

Claims 19,23-25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirchner [975] in view of Young [976] and further in view of Blessing [429]. As per claims 19,25,29, Kirchner [975] teaches the supports being affixed to a front face of the mounting base. See Kirchner [975] fig. 4A. However, Kirchner [975] does not specifically state that front face or a rear face has at least one groove therein, wherein an electrical lead is sequestered in the groove and the mounting base further comprises a shielding plate covering the groove. Young [976] does teach the front face or a rear face having at least one groove therein and shielding covering the groove. See Young [976] fig. 2, col. 7 lines 9-35, 47-69 and col. 8 lines 8-15. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the front face or a rear face have at least one groove therein in order to aid in securing the ion optics to the base as taught in Young [976]. Although Young [976] does teach the shielding, it does not specifically teach an electrical lead being sequestered in the groove. Blessing [429] does teach an electrical lead being sequestered in the groove. It also teaches the shielding covering the groove. See Blessing [429] abstract, figs. 2a-4, col. 5 lines 40-50, 63-67, col. 6 lines 1-10, col. 7 lines 1-10 and 35-50. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have an electrical lead be sequestered in the groove with shielding covering the groove in order to provide voltage and current to the ion optics without introducing non-ideal field distortions at the central axis as taught in Blessing [429].

As per claim 23, Young [976] teaches the base further comprising at least one opening there through. See Young [976] fig. 2.

As per claim 24, Kirchner [975] in view of Young [976] and further in view of Blessing [429] teach all aspects of the claim except for explicitly stating at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening in order to ensure that the supports were aligned properly so as to provide a vacuum seal and also to ensure that the ion optics guided the ions to the detector.

Claims 1-4,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andresen [433]. As per claims 1,10, Andresen [433] teaches a base having a front face a rear face and at least one side face, at least two supports (walls) where in each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support, and wherein at least on of the supports has attached thereto a component of an ion optics system for a mass spectrometer. See Andresen [433] abstract, figs. 1-8,12-13, col. 1 lines 13-55, col. 2 lines 10-20, col. 3 lines 35-65, col. 4 lines 5-30, col. 5 lines 30-68, col. 6 lines 1-25, col. 7 lines 9-25, 50-60, and col. 8 lines 1-10, 59-65. However, Andresen [433] does not explicitly state the supports providing for optical alignment within acceptable tolerances of components of an ion optics

system when mounted thereon. Andresen [433] does however teach that means for adjusting the ion optics. See Andresen [433] col. 3 lines 35-65, col. 5 lines 35-69, and col. 6 lines 1-20. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the supports provide for optical alignment within acceptable tolerances of components of an ion optics system when mounted thereon in order insure proper measurement of the particle or analyte that is being examined by the mass spectrometer. In addition Andresen [433] also teaches that it was known to provide means for adjusting the ion optics due to the shifting of that ion optics that could occur during transport of the mass spectrometer device.

As per claim 2, Andresen [433] teaches the alignment being at 90 degrees. See Andresen [433] figs. 1-2.

As per claim 3, Andresen [433] teaches at least one of the supports having at least two faces and at least a portion of each of the two faces being aligned with two faces of the base. See Andresen [433] figs. 1-2, and col. 3 lines 45-60.

As per claim 4, Andresen [433] teaches the apparatus being a mass spectroscopy apparatus. See Andresen [433] abstract, figs. 1-8, 12-13, col. 1 lines 13-55, col. 2 lines 10-20, col. 3 lines 35-65, col. 4 lines 5-30, col. 5 lines 30-68, col. 6 lines 1-25, col. 7 lines 9-25, 50-60, and col. 8 lines 1-10, 59-65.

Claims 10, 20, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drew [061]. As per claim 10, Drew [061] teaches a mass spectroscopy apparatus comprising components of an ion optics system for a mass spectrometer affixed to a mounting base, each of the components being affixed to a support, each of the supports

having at least one support mating face, wherein the mounting base comprising a plurality of base mating faces respectively corresponding to a respective support mating face, wherein the support mating faces and the base mating faces are configured and dimensioned such that when the support mating are brought together in registration with the respective base mating faces, the component are optically aligned. See Drew [061] abstract, figs. 1, 2a-6c, 8b-9a, 14, col. 2 lines 45-65, col. 3 lines 15-20, 45-60, col. 5 lines 50-60, col. 6 lines 15-21, col. 8 lines 35-50, col. 12 lines 1-5, column 13, col. 14 lines 30-45, col. 16 lines 30-69, col. 17 lines 1-45, and col. 19 lines 5-30. However, it does not explicitly state that the components are aligned within acceptable tolerances. Drew [061] does teach the components being precisely aligned. See Drew [061] col. 16 lines 25-35. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the components be aligned within acceptable tolerances in order insure accurate measurement of analyte or ion that is of interest.

As per claims 20, 26, Drew [061] teaches a method for constructing an apparatus comprising a plurality of components of an ion optical system for a mass spectrometer, the method comprising bringing together a base having a front face and a rear face and at least one side face, and a plurality of supports wherein each of the supports has at least one face and wherein each of the components is attached or is attachable to one of the supports, aligning at least a portion of a face of each of the supports with a corresponding portion of at least one face of the base and securing the portions to one another wherein the components of the ion optical system for a mass spectrometer are attached to the supports prior to or subsequent to the step and wherein the portions of

the faces are configured and dimensioned such that when the portions are secured the components are optically aligned. See Drew [061] abstract, figs. 1, 2a-6c, 8b-9a, 14, col. 2 lines 45-65, col. 3 lines 15-20, 45-60, col. 5 lines 50-60, col. 6 lines 15-21, col. 8 lines 35-50, col. 12 lines 1-5, column 13, col. 14 lines 30-45, col. 16 lines 30-69, col. 17 lines 1-45, and col. 19 lines 5-30. However, it does not explicitly state that the components are aligned within acceptable tolerances. Drew [061] does teach the components being precisely aligned. See Drew [061] col. 16 lines 25-35. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the components be aligned within acceptable tolerances in order to insure accurate measurement of analyte or ion that is of interest.

### ***Response to Arguments***

Applicant's arguments filed 9/17/03 have been fully considered but they are not persuasive. With respect to that applicant's arguments concerning Becker [137], it is the examiner's view that Becker [137] does teach the claims the ion optic components being aligned within acceptable tolerances. Although the words, "acceptable tolerances" is not mentioned it is inherent that component would be aligned within tolerance that are deemed acceptable. Otherwise the apparatus would malfunction or give incorrect measurements when turned on. In addition, it would have been obvious to one of ordinary skill to align the ion optic component within acceptable tolerance in order to obtain accurate readings. Although the applicants' arguments pertain to an

“optical bench”, nowhere in any of the claims is this termed mention. Therefore that applicant’s argument concerning the term “optical bench”, are not persuasive.

With respect to Kirchner [975] the applicant again argues/stresses the term “optical bench” however, the applicant’s claims do not mention this term. It is the examiner’s view that Kirchner [975] is relative prior art. The applicant in its response even acknowledges Kirchner [975] may be seen as being optically aligned. It also would have been obvious to one of ordinary skill to align the ion optic component within acceptable tolerance in order to obtain accurate readings.

With respect to the arguments concerning Blessing [429], the examiner still disagrees. While the Blessing [429] does refer to grooves in way as mention by the applicant in its argument, the examiner did not cite this as the grooves used to reject the claims. The examiner referred to col. 5 lines 40-50, 63-67, col. 6 lines 1-10, and col. 7 lines 1-11 in Blessing [429]. Here in these columns and lines the claim is clearly taught.

With respect to the applicant’s arguments concern Meek [365], it is the examiner’s view that Meek [365] does indeed teach the claim. In the way that the claim is written, it can almost be interpreted as just a box, that is until one reaches the point in the claim where it now states “...wherein the supports provide for optical alignment within acceptable tolerances of components of an ion optics system when mounted thereon....” It is the examiner’s view that fig. 1 which does provide for an ion optics component does fulfill the aspects of the claim. In addition, it is clearly shown fig. 1 of Meek [365] the aspects of claim one. With respect to that applicant’s claim about


acceptable tolerances, it would have been obvious to one of ordinary skill in the art to have the ion optic component be align with in acceptable tolerances in order to provide the proper trajectory for the ions to enter the device in fig. 1 of Meek [365].


### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Nos. 5,144,127 to Williams et al., 6,182,831 to Scheidemann et al, 3,758,217 to Stokstad and GB 2133901A to Evgeny Mikhailovich et al. Williams [127] is considered pertinent because of its discussion on a surface induced dissociation with reflectron time-of-flight mass spectrometry. Scheidemann [831] is considered pertinent because of its discussion on and magnetic separator for linear dispersion and method for producing the same. Stokstad [217] and GB 2133901A to Evgeny Mikhailovich are considered pertinent because there discussion on optical benches.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (703)-308-6555. The examiner can normally be reached on M-F from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee, can be reached on (703)-308-4116. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

  
A. Quash 1/12/04

  
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